



## Monolithic N-Channel JFET Dual

### PRODUCT SUMMARY

| $V_{GS(off)}$ (V) | $V_{(BR)GSS}$ Min (V) | $g_{fs}$ Min (mS) | $I_G$ Typ (pA) | $ V_{GS1} - V_{GS2} _{Max}$ (mV) |
|-------------------|-----------------------|-------------------|----------------|----------------------------------|
| -1 to -6          | -25                   | 4.5               | -1             | 20                               |

### FEATURES

- Monolithic Design
- High Slew Rate
- Low Offset/Drift Voltage
- Low Gate Leakage: 1 pA
- Low Noise
- High CMRR: 90 dB

### BENEFITS

- Tight Differential Match vs. Current
- Improved Op Amp Speed, Settling Time Accuracy
- High-Speed Performance
- Minimum Input Error/Trimming Requirement
- Insignificant Signal Loss/Error Voltage
- High System Sensitivity
- Minimum Error with Large Input Signal

### APPLICATIONS

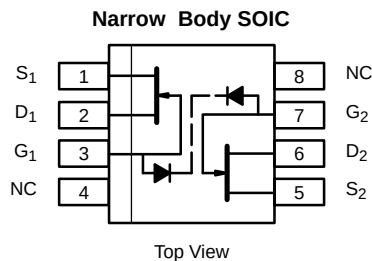
- Wideband Differential Amps
- High-Speed, Temp-Compensated, Single-Ended Input Amps
- High Speed Comparators
- Impedance Converters

### DESCRIPTION

The SST441 is a monolithic high-speed dual JFET mounted in a single SO-8 package. This JFET is an excellent choice for use as wideband differential amplifiers in demanding test and measurement applications.

The SO-8 package is available with tape-and-reel options to support automated assembly (see Packaging Information).

For similar products in TO-71 packaging, see the U441 data sheet.



### ABSOLUTE MAXIMUM RATINGS

Gate-Drain, Gate-Source Voltage . . . . . -25 V  
Gate Current . . . . . 50 mA  
Lead Temperature ( $1/16$ " from case for 10 sec.) . . . . . 300°C  
Storage Temperature . . . . . -55 to 150°C

Operating Junction Temperature . . . . . -55 to 150°C  
Power Dissipation : Per Side<sup>a</sup> . . . . . 300 mW  
Total<sup>a</sup> . . . . . 500 mW

#### Notes

a. Derate 2.4 mW/°C above 25°C

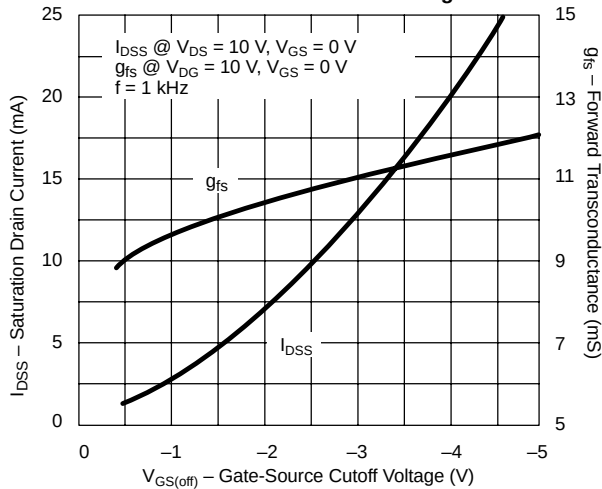
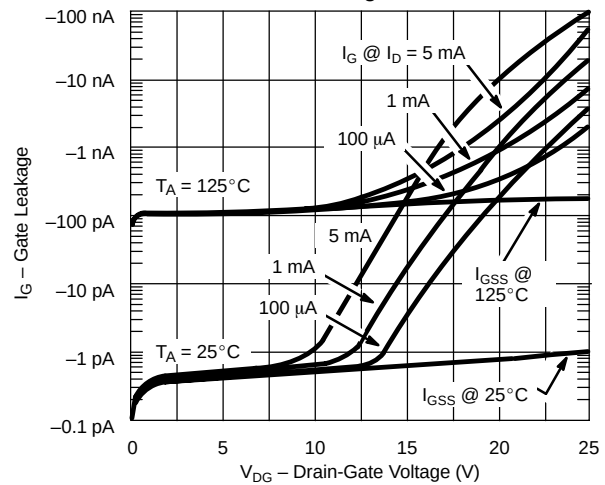
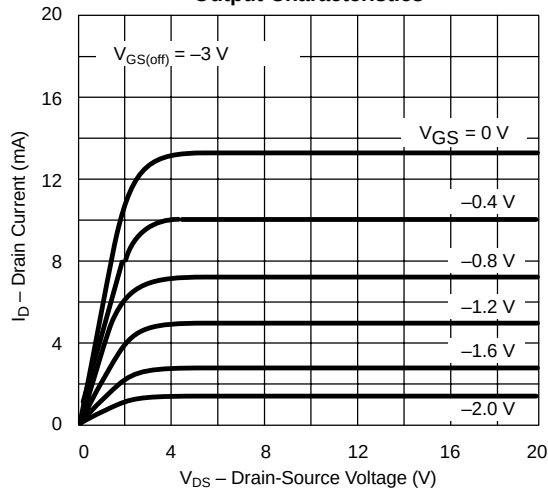
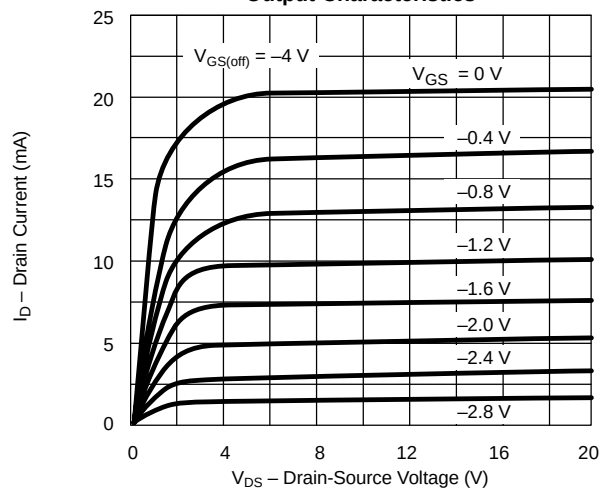
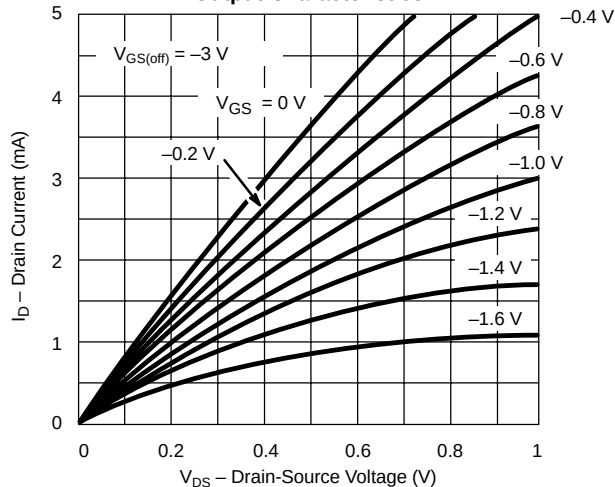
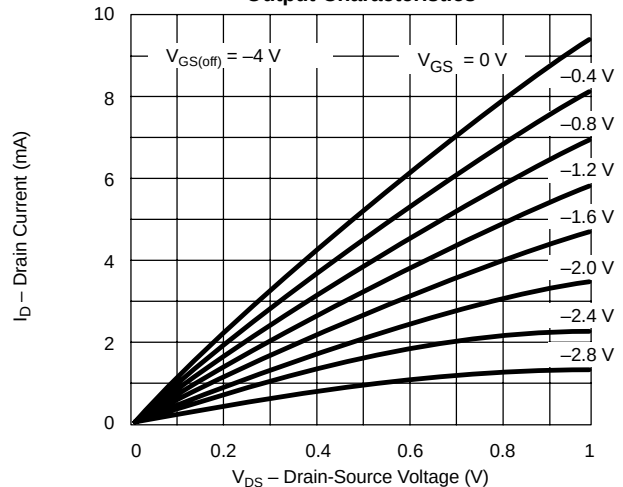
For applications information see AN102.

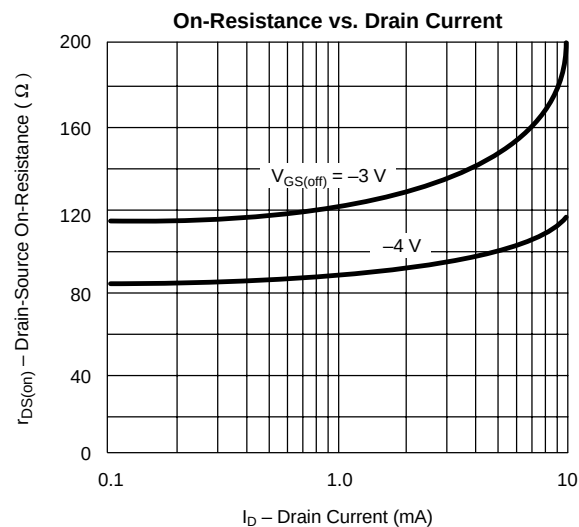
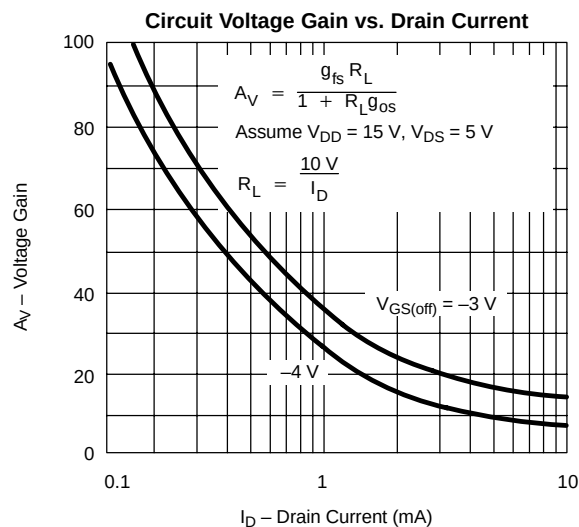
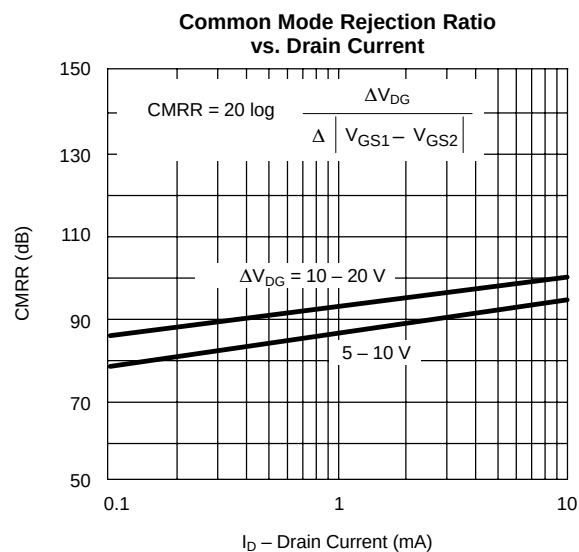
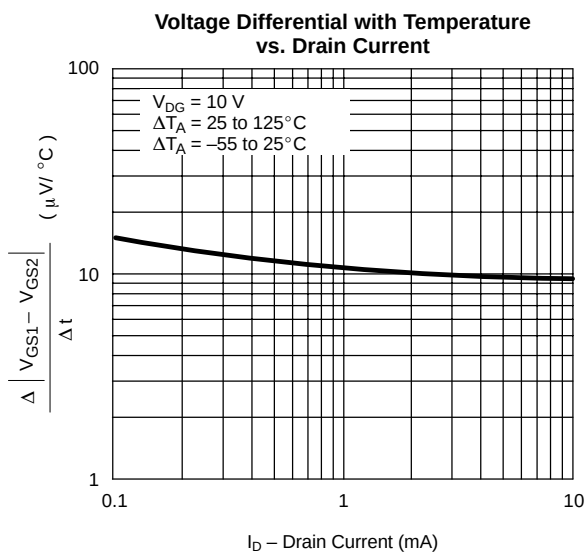
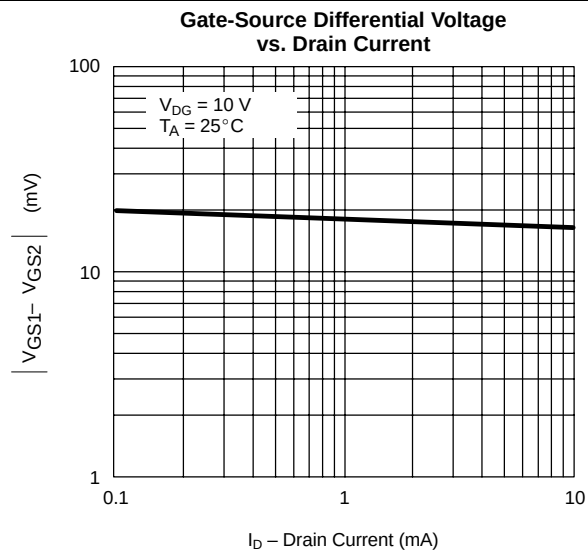
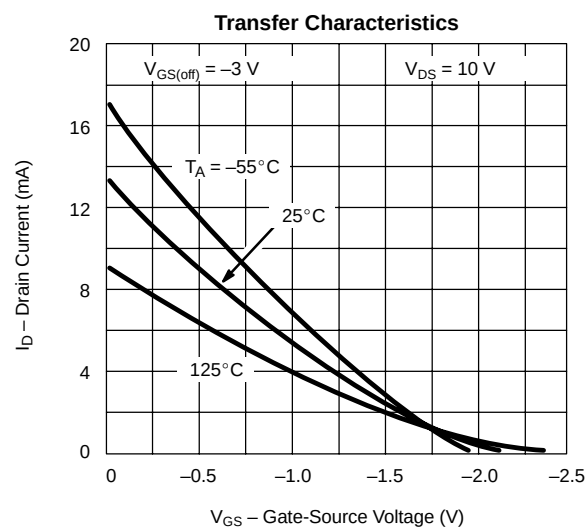
| SPECIFICATIONS (T <sub>A</sub> = 25 °C UNLESS OTHERWISE NOTED) |                                              |                                                                                |        |                  |      |            |
|----------------------------------------------------------------|----------------------------------------------|--------------------------------------------------------------------------------|--------|------------------|------|------------|
| Parameter                                                      | Symbol                                       | Test Conditions                                                                | Limits |                  |      | Unit       |
|                                                                |                                              |                                                                                | Min    | Typ <sup>a</sup> | Max  |            |
| Static                                                         |                                              |                                                                                |        |                  |      |            |
| Gate-Source Breakdown Voltage                                  | V <sub>(BR)GSS</sub>                         | I <sub>G</sub> = −1 μA, V <sub>DS</sub> = 0 V                                  | −25    | −35              |      | V          |
| Gate-Source Cutoff Voltage                                     | V <sub>GS(off)</sub>                         | V <sub>DS</sub> = 10 V, I <sub>D</sub> = 1 nA                                  | −1     | −3.5             | −6   |            |
| Saturation Drain Current <sup>b</sup>                          | I <sub>DSS</sub>                             | V <sub>DS</sub> = 10 V, V <sub>GS</sub> = 0 V                                  | 6      | 15               | 30   | mA         |
| Gate Reverse Current                                           | I <sub>GSS</sub>                             | V <sub>GS</sub> = −15 V, V <sub>DS</sub> = 0 V                                 |        | −1               | −500 | pA         |
|                                                                |                                              | T <sub>A</sub> = 125°C                                                         |        | −0.2             |      | nA         |
| Gate Operating Current                                         | I <sub>G</sub>                               | V <sub>DG</sub> = 10 V, I <sub>D</sub> = 5 mA                                  |        | −1               | −500 | pA         |
|                                                                |                                              | T <sub>A</sub> = 125°C                                                         |        | −0.2             |      | nA         |
| Gate-Source Forward Voltage                                    | V <sub>GS(F)</sub>                           | I <sub>G</sub> = 1 mA , V <sub>DS</sub> = 0 V                                  |        | 0.7              |      | V          |
| Dynamic                                                        |                                              |                                                                                |        |                  |      |            |
| Common-Source Forward Transconductance                         | g <sub>fs</sub>                              | V <sub>DS</sub> = 10 V, I <sub>D</sub> = 5 mA<br>f = 1 kHz                     | 4.5    | 6                | 9    | mS         |
| Common-Source Output Conductance                               | g <sub>os</sub>                              |                                                                                |        | 20               | 200  | μS         |
| Common-Source Forward Transconductance                         | g <sub>fs</sub>                              | V <sub>DS</sub> = 10 V, I <sub>D</sub> = 5 mA<br>f = 100 MHz                   |        | 5.5              |      | mS         |
| Common-Source Output Conductance                               | g <sub>os</sub>                              |                                                                                |        | 30               |      | μS         |
| Common-Source Input Capacitance                                | C <sub>iss</sub>                             | V <sub>DS</sub> = 10 V, I <sub>D</sub> = 5 mA<br>f = 1 MHz                     |        | 3.5              |      | pF         |
| Common-Source Reverse Transfer Capacitance                     | C <sub>rss</sub>                             |                                                                                |        | 1                |      |            |
| Equivalent Input Noise Voltage                                 | e <sub>n</sub>                               | V <sub>DS</sub> = 10 V, I <sub>D</sub> = 5 mA<br>f = 10 kHz                    |        | 4                |      | nV/<br>√Hz |
| Matching                                                       |                                              |                                                                                |        |                  |      |            |
| Differential Gate-Source Voltage                               | V <sub>GS1</sub> − V <sub>GS2</sub>          | V <sub>DG</sub> = 10 V, I <sub>D</sub> = 5 mA                                  |        | 7                | 20   | mV         |
| Gate-Source Voltage Differential Change with Temperature       | $\frac{\Delta V_{GS1} - V_{GS2} }{\Delta T}$ | V <sub>DG</sub> = 10 V, I <sub>D</sub> = 5 mA<br>T <sub>A</sub> = −55 to 125°C |        | 10               |      | μV/°C      |
| Saturation Drain Current Ratio <sup>c</sup>                    | $\frac{I_{DSS1}}{I_{DSS2}}$                  | V <sub>DS</sub> = 10 V, V <sub>GS</sub> = 0 V                                  |        | 0.98             |      |            |
| Transconductance Ratio <sup>c</sup>                            | $\frac{g_{fs1}}{g_{fs2}}$                    | V <sub>DS</sub> = 10 V, I <sub>D</sub> = 5 mA<br>f = 1 kHz                     |        | 0.98             |      |            |
| Common Mode Rejection Ratio                                    | CMRR                                         | V <sub>DG</sub> = 10 to 15 V, I <sub>D</sub> = 5 mA                            |        | 90               |      | dB         |

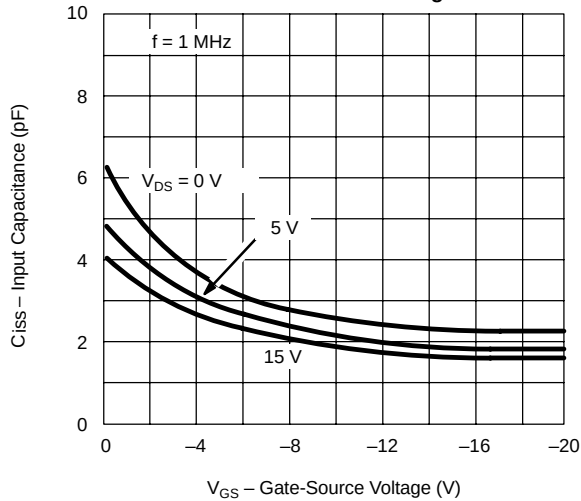
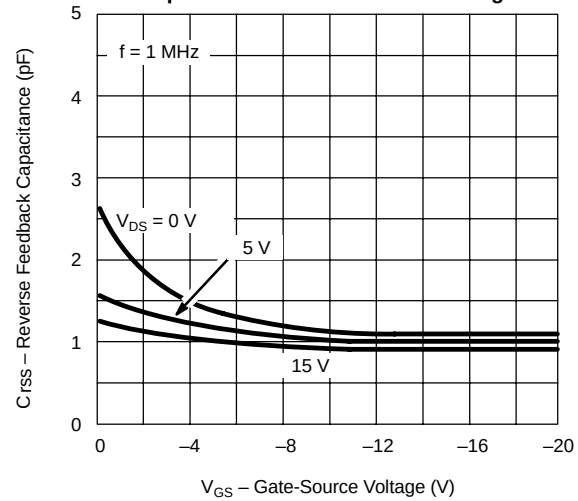
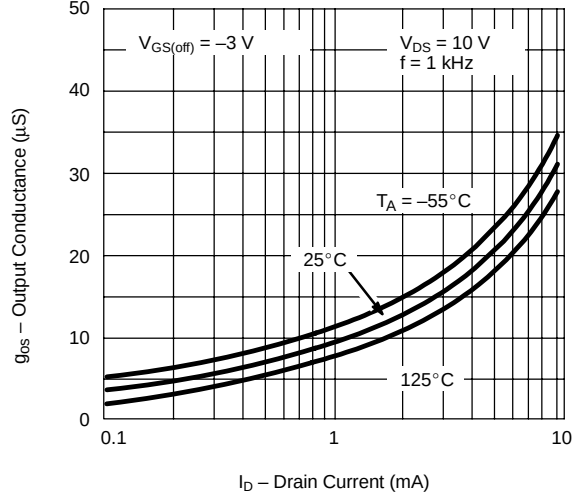
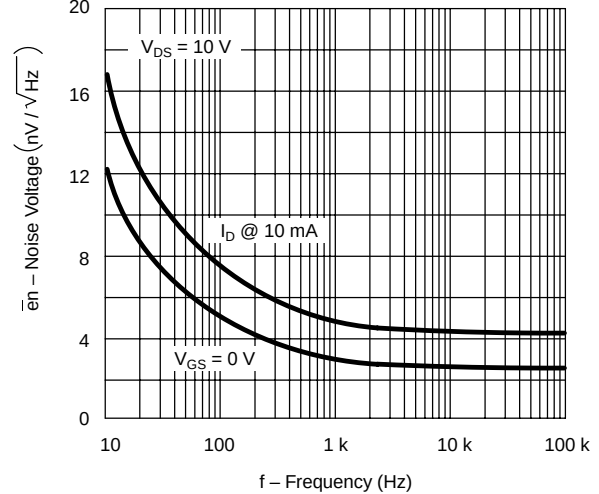
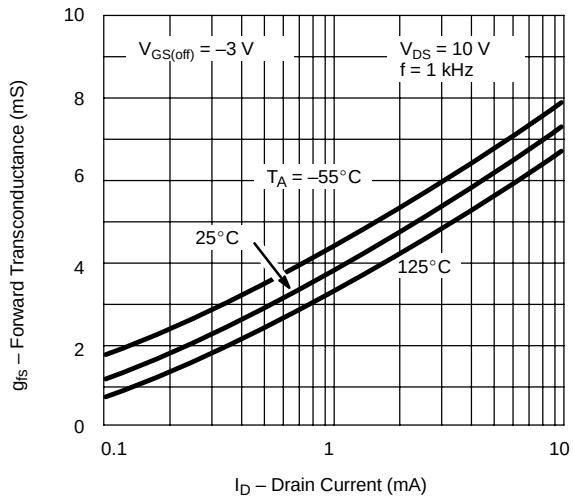
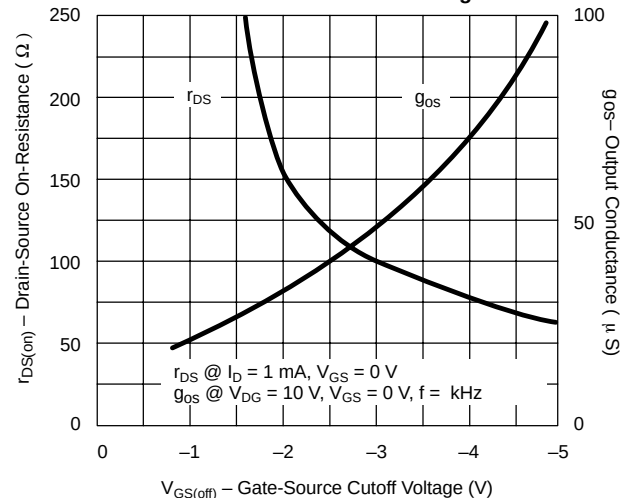
## Notes

- a. Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.  
b. Pulse test: PW ≤ 300 μs duty cycle ≤ 3%.  
c. Assumes smaller value in the numerator.

NNZ

**TYPICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$  UNLESS OTHERWISE NOTED)****Drain Current and Transconductance  
vs. Gate-Source Cutoff Voltage****Gate Leakage Current****Output Characteristics****Output Characteristics****Output Characteristics****Output Characteristics**

**TYPICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$  UNLESS OTHERWISE NOTED)**


**TYPICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$  UNLESS OTHERWISE NOTED)**
**Common-Source Input Capacitance vs. Gate-Source Voltage**

**Common-Source Reverse Feedback Capacitance vs. Gate-Source Voltage**

**Output Conductance vs. Drain Current**

**Equivalent Input Noise Voltage vs. Frequency**

**Common-Source Forward Transconductance vs. Drain Current**

**On-Resistance and Output Conductance vs. Gate-Source Cutoff Voltage**


This datasheet has been download from:

[www.datasheetcatalog.com](http://www.datasheetcatalog.com)

Datasheets for electronics components.